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FIELD WORK.

The second term will be devoted to field work in geography and nature study in selected regions in Illinois, Iowa, and Wisconsin. The work will include a study of the topography and genesis of the regions visited; also a study of the industries and the plant and animal life as determined by this topography. The field work will be in charge of Miss Baber and Mr. I. B. Meyers. In case Mr. Meyers should not be able to go, a substitute will be provided.

MATHEMATICS.

COURSE I. APPLIED ARITHMETIC.

(Laboratory course.)

GERTRUDE VAN HOESEN.

THIS course has been planned with the year's work as a basis. When the data have been obtained, the work will be considered from the standpoint of adaptation to grade. In order to do this, special attention will be given to the teaching of the fundamental operations, fractions, decimals, and percentage, wherever the work demands their use.

SOILS.

I. Classification in relation to locality, *i. e.*, garden, farm, swamp, forest, or lakeshore. (1) Examination as to mechanical constituents. (2) Examination as to properties: (*a*) percolation of water; (*b*) capacity to prevent evaporation; (*c*) capillarity; (*d*) inference in regard to the percentage of the different constituents in the various soils. (3) The relation of the earthworms to good soil. (4) Examination of soils in regard to physical constituents.

II. Examination of plants from the different localities. (1) Does the difference in soil affect the constituents or growth of the plants? (2) Comparison of plants from the different areas as to roots, stem, and leaves.

WATER.

The relation of moisture to plant life. (1) Proof that plants absorb water. (2) Relation of the amount of water absorbed to the amount transpired. (3) Relation of the amount transpired to the leaf area. (4) Estimate the amount of water transpired from a small tree. (5) How much water has the tree at its disposal? (*a*) Find the volume of soil within reach of the roots. (*b*) Estimate the amount of water in this soil. (6) Effect of transpiration from land covered with forests. (7) Study of evaporation. What affects the

rate? (8) What amount of water is added to supply already in soil? Keep record of rainfall. (9) Use of water to the plant. (a) Test samples of the water which has transpired and that which the roots absorb. Inference. (b) Find the constituents of the fruit, leaves, wood, and soil of different trees.

TEMPERATURE.

Relation of temperature to growth. Use the sunshine and weather charts to find some of the causes for the change in the landscape.

GROWTH.

Determination of the growth of trees. The use of the records made of the physical measurements of the children.

The problems that come up in connection with manual training, cooking, and gardening, and those also that the teachers wish to solve in connection with their other work, will be considered in this course.

COURSE II. THE INTERRELATION OF SUBJECTS IN ELEMENTARY MATHEMATICS.

HERBERT ELLSWORTH SLAUGHT.

It is believed that the teaching of arithmetic should have as a rational basis a thorough knowledge of at least the elementary subjects of mathematics with which it is so closely connected. An appreciative familiarity with algebra, geometry, and trigonometry, and desirably the elements of analytic geometry and calculus, not only provides the teacher with a fund of illustrative material for use in the class-room, but also gives the breadth of view, keenness of insight, and clearness of thinking which enable the possessor to formulate and pursue a sound and inspiring method of teaching. This course is designed to set forth the close relationship among these subjects, and to discuss the bearing of this upon the teaching of arithmetic. The work will involve both theory and practice, and each will be considered from the standpoint of the pupil as well as that of the teacher in the upper grades.

For convenience the matter will be considered under the following five topics:

1. The content of the various subjects in elementary mathematics. The classification of the subject-matter with reference to its relation to arithmetic.

II. The number concept; its origin and development; its bearing on the development of the reasoning power.

III. Ends to be sought in the study of arithmetic in the upper grades.

IV. Consideration of various means of attaining the desired results in the study of elementary mathematics.

V. The selection and solution of problems. Interpretation and methods of attack.

SPEECH, ORAL READING, AND DRAMATIC ART.

MARTHA FLEMING.

EXPRESSION is a social function. The school gives ideal conditions for acquiring power in expression, and it should be organized to give the child ample opportunity to use this power for the good of the whole community.

I. *Expression*.—Expression is the natural result of all thinking, and, when controlled by the will, becomes a means of image growth. It is habit-forming. It is character-making. Expression has three functions: first, its physical function, the training and growth of the body; second, its intellectual function, reaction upon thought, for without expression educative thought is impossible; third, its moral function, the development of motive and the training of the emotions. These three are in reality one in action. Any attempt to separate them is fatal to all.

Expression is a necessity of growth, a revelation of power, of one's largest self and highest possibilities. Definite, clear thinking produces definite, clear expression. Vague, indefinite thinking produces vague, indefinite expression. It is uncertainty that paralyzes.

Each mode of expression has its own particular reactive function. Form, necessary to any clear imaging, is realized by the plastic arts—a closer analysis of form by drawing, of color by painting, of complete synthesis by writing. Dramatic art focuses the experiences gained in all the other arts, and combines them into one supreme act. The product of each mode of expression reinforces all the others. Children should get a wide outlook—taste, expression in every form—no specialization. (See Parker, "Relation of Self-Expression to Knowledge," *ELEMENTARY SCHOOL TEACHER*, Vol. II, No. 1; *idem*, *Talks on Pedagogics*, chaps. x, xi, xii, xiii.)

II. *Reading*.—Reading is thinking. It realizes ideas, focuses experiences, and forms habits. It presupposes a certain experience on a subject. It is an organic part of the study of any subject. Attitude of the child toward books. Preparation and motive for their use. Reading sometimes a dissipation. Waste of time and energy in learning to read. Where should the problem of learning to read be solved? The habit of thinking of the forms of expres-